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orchids cultivated in the United States, its scope being limited to this family of plants. The first fascicle, issued on April 8, contains illustrations, critical notes, and technical descriptions covering a wide range of genera in the family and a number of countries. The most interesting feature for American botanists is a critical paper called "Contributions toward a Monograph of the American Species of *Spiranthes*," to which 33 pages are devoted.

W. T.

Notes.—The fourth of Rose's "Studies of Mexican and Central American Plants" (*Contributions from the U. S. National Herbarium*, vol. 8, part 4), like its predecessors is an important addition to the published information about the plants of the high tableland. The author states that none of the many new species it contains have been described until all their known Mexican relatives had been studied, and in most cases a synopsis of the genus prepared,—a procedure that speaks well for the conclusions reached.

A paper on plants eaten by the ancient Mexicans, by Urbina, has been published from the Museo Nacional of Mexico.

Nuttall's *Journal of Travels into the Arkansas Territory during the Year 1819, with Occasional Observations on the Manners of the Aborigines*, published at Philadelphia in 1821, is reprinted as vol. 13 of the *Early Western Travels* being edited by Dr. Thwaites of the Wisconsin Historical Society.

Under the title "Plant Migration Studies," Professor Bessey has distributed from *University Studies*, vol. 5, no. 1 (University of Nebraska) separately of an analysis of the distribution of Nebraska trees and the factors which have influenced it,—with 67 thumb-nail maps of the State, referring to as many trees.

The forest conditions of northern New Hampshire are considered by Chittenden in *Bulletin no. 55* of the Bureau of Forestry, U. S. Department of Agriculture.

A paper entitled "Additions to the Flora of Subtropical Florida," by Small, has recently been issued in the *Bulletin of the New York Botanical Garden*.

A contribution to the flora of the Bahama Islands, by Britton, is separately printed from vol. 3, no. 11, of the *Bulletin of the New York Botanical Garden*.

A monograph of Portuguese Orobanchaceæ, by Guimaraes, is published in *Broteria* for 1904.

Among other forest views, the *Report of the Forestry Bureau of the Philippine Islands* for the year ending September 1, 1903, recently issued, contains a good photogram showing the aërating roots of *Bruguiera caryophyllæoides*.

Mutation is discussed from various points of view in a series of papers printed in *Science* of April 7.

The megaspore membrane of Gymnosperms forms the subject of a paper by Thomson, published as no. 4 of the biological series of *University of Toronto Studies*.

Haywood publishes a paper on the injury to vegetation by smelter fumes, as *Bulletin no. 89* of the Bureau of Chemistry, U. S. Department of Agriculture.

The great scope of economic botanical study by the Government Bureau of Plant Industry, which spends annually nearly a million dollars, is well shown by the recently issued *Report of the Secretary of Agriculture for the Year ending June 30, 1904*.

The prickly pear and other cacti as food for stock are discussed by Griffiths in *Bulletin no. 74* of the Bureau of Plant Industry, U. S. Department of Agriculture.

A paper by Mann and Hunter on sisal-hemp culture in the Indian tea districts has been published recently by the Indian Tea Association of Calcutta.

An illustrated article on commercial Catalpa growing, by Gleason, is contained in *Country Life in America* for May.

Vol. 9 of the *Contributions from the U. S. National Herbarium* consists of an account of the useful plants of the island of Guam, by Safford.

Some large trees are noted and figured by Tavares in vol. 3 of *Broteria*.

The remarks of a number of biologists, chemists, and engineers on the use of copper sulphate for the purification of water supplies are published in *Science* of April 21.

The decays of timber due to higher fungi are reached in Lieferung 6 of Lafar's *Handbuch der Technischen Mykologie*, pertaining to volume 3.

The fungous diseases of orchard trees are considered by Wilcox in *Bulletin no. 132* of the Alabama Agricultural Experiment Station.

Three (edible) species of *Coprinus* are figured by Arthur in *Bulletin no. 98* of the Purdue University Experiment Station.

Sclerotinia padi and the diseases it causes are described by Lambert in an illustrated article in *Gartenflora* of April 1.

Nomenclatorial type specimens of plant species are discussed by Hitchcock in *Science* of May 26. In connection with some of the suggestions of this article should be read another, on general grounds, by Schuchert, in the same journal of June.

A noteworthy monograph of the genus *Nymphæa*, in quarto (xiii + 279 pp., 30 pls.), by Conard, has recently appeared as *Publication no. 4 of the Carnegie Institution of Washington*.

The development of *Sarracenia purpurea* is discussed by Shreve in *The Johns Hopkins University Circular*, no. 178.

Maiden's revision of the genus *Eucalyptus* has reached the 6th part, ending with p. 180 and pl. 32.

An anatomical study of *Croomia paucifolia* is published by Holm in *The American Journal of Science* for July.

A revision of the genus *Zexmenia*, by Jones, forms n. s., no. 30, of the "Contributions from the Gray Herbarium of Harvard University," published as vol. 41, no. 7, of the *Proceedings of the American Academy of Arts and Sciences*, issued June 23.

Stages in the development of *Sium cicutæfolium* are described by Shull in *Publication no. 30 of the Carnegie Institution of Washington*.

Recent publications on South American cacti are: Arechavaleta, "Flora Uruguay," 2 entrega, forming part of the *Anales del Museo Nacional de Montevideo*; and Spegazzini, "Cactacearum Platensium Tentamen," in ser. 3, vol. 4, of the *Anales del Museo Nacional de Buenos Aires*, which Mr. Berger is summarizing in recent issues of the *Monatsschrift für Kakteenkunde*.

A paper on the haustoria of *Santalum*, by Barber, is published in *The Indian Forester* for April.

A paper on the development of *Phytolacca decandra*, by Lewis, is published in *The Johns Hopkins University Circular*, no. 178.

A preliminary paper by Johnson, on seed development in the Piperales and its bearing on the relationship of the order is published in no. 178 of *The Johns Hopkins University Circular*.

An account of the Jamaican species of *Lepanthes*, by Fawcett and Rendle, forms vol. 7, part 1, of the current botanical series of *Transactions of the Linnean Society of London*.

Teratological flowers of *Agave* are described by Maige in the *Revue Générale de Botanique* of April 15.

The North American species of *Agrostis* are revised by Hitchcock in *Bulletin no. 68* of the Bureau of Plant Industry, U. S. Department of Agriculture, under date of April 29.

A facsimile reprint of Cutler's "An Account of some of the Vegetable Productions naturally growing in this Part of America," from the first volume of *Memoirs of the American Academy of Arts and Sciences*, forms no. 7 (reproduction series no. 4) of the *Bulletin of the Lloyd Library*, issued in 1903.

An account of the vegetation of the "Sotol Country" in Texas, by Bray, forms *Bulletin no. 60* (scientific series no. 6) of the University of Texas.

An illustrated popular account of desert vegetation is given by Sharlot M. Hall in *Out West* for June.

Volume 9 of the "Flore de France" of Rouy, Foucaud, and Camus, published as the *Annales de 1904* of the Académie de la Rochelle, deals with Compositæ.

An account of new plants from the islands of Margarita and Coche, Venezuela, by Johnston, forming no. 29 of the new series of "Contributions from the Gray Herbarium of Harvard University," has recently been published as no. 21 of the current volume of *Proceedings of the American Academy of Arts and Sciences*.

A paper on the vegetation of Madeira, by Vahl, is contained in vol. 36, part 2, of Engler's *Botanische Jahrbücher*.

Vacciniaceæ and Ericaceæ (in part) are treated in the recently issued vol. 4, sect. 1, parts 1 and 2, of the "Flora Capensis" edited by Sir W. T. Thiselton-Dyer.

Papers on *Indigofera* (by Baker) and *Aloë* (by Schönland) are contained in vol. 1, part 4, of the *Records of the Albany Museum*, of Grahamstown.

The biological significance of leaf-fall is discussed by Wiesner in the *Berichte der deutschen botanischen Gesellschaft* of May 25.

A review of the identifications of the species described in Blanco's *Flora de Filipinas*, by Merrill, constitutes no. 27 of the publications of the *Bureau of Government Laboratories*, Manila, bearing date of April, 1905.

A paper by Pond on the biological relation of aquatic plants to the substratum has been separately issued, recently, from the *U. S. Fish Commission Report for 1903*.

Duggar's St. Louis address on present problems in plant physiology is printed in *Science* of June 23.

A translation, by Lloyd, of Gœbel's St. Louis address on the fundamental problems of present-day plant morphology is published in *Science* of July 14.

The mutations of *Lycopersicum* are discussed by White in *The Popular Science Monthly* for July.

A thesis on fruit and vegetable colors, by LaWall, is published in *The American Journal of Pharmacy* for July.

An important paper on the fly-galls of *Juniperus* is published by Howard in vol. 1, no. 2, of the ninth series of *Annales des Sciences Naturelles—Botanique*.

A paper on the morphology and anatomy of the stem of *Lycopodium*, by Jones, forms vol. 7, part 2, of the current botanical series of *Transactions of the Linnean Society of London*.

An extensive paper on the development of the ascus and spore formation in Ascomycetes (Contribution no. 61 from the Cryptogamic Laboratory of Harvard University) is published as vol. 32, no. 4, of the *Proceedings of the Boston Society of Natural History*.

The recently issued 17th volume of Saccardo's *Sylloge Fungorum* forms part 6 of the *Supplementum Universale* to the original work.

Postembryonal stages of the Laminariaceæ are described by Setchell in vol. 2, no. 4, of the *University of California Publications—Botany*.

A short paper on some Yellowstone diatoms is published by Edwards in *Nuova Notarisia* for July.

The cell structure of Cyanophyceæ forms the subject of a paper

by Fischer, published as no. 4-6 of the 63d volume of the *Botanische Zeitung*, I Abtheilung.

No. 8 (Mycological series no. 3) of the *Bulletin of the Lloyd Library*, dated April, 1905, contains an account by C. G. Lloyd of the Lycoperdaceæ of Australia, New Zealand, and neighboring islands.

An important paper connecting many Fungi Imperfecti with Ascomycetous forms has been published by Klebahn in vol. 41, heft 4, of the *Jahrbücher für wissenschaftliche Botanik*.

"Asparagus and Asparagus Rust in California" is the title of a well illustrated paper by Smith, published as *Bulletin no. 165* of the Agricultural Experiment Station of that State.

A paper on the grain-rust epidemic of 1904, by Carleton, forms *Farmers' Bulletin no. 219* of the U. S. Department of Agriculture.

Atkinson and Shore have published an illustrated paper on mushroom growing for amateurs as *Bulletin no. 227* of the Cornell University Agricultural Experiment Station.

A paper on apple scab and cedar rust, by Emerson, forms *Bulletin no. 88* of the Agricultural Experiment Station of Nebraska.

Orchard diseases are discussed by Wilcox in *Bulletin no. 132* of the Alabama Agricultural Experiment Station.

A popular summer key to our trees, by Julia Ellen Rogers, is published in *Country Life in America* for July.

Volume 3 of Marshall Ward's *Trees* deals with flowers and inflorescences, descriptively treated with reference to British forms.

Alwood, Davidson, and Moncure describe the composition of cider as determined by dominant fermentation with pure yeasts, in *Bulletin no. 150* of the Virginia Agricultural Experiment Station.

An agricultural-geographical study of rubber plants, with map, by Reintgen, forms no. 2-3 of the current volume of *Beihefte zum Tropenpflanzer*.

An account of native and introduced saltbushes, by Elias Nelson, forms *Bulletin no. 63* of the Wyoming Experiment Station.

The Mexican "guayule" (*Parthenium argentatum*) used as a source of caoutchouc, is the subject of an article by Endlich in *Der Tropenpflanzer* for May.

A well illustrated article by Fullerton, on "Roots We Eat," is contained in *Country Life in America* for July.

The wild legumes of Maryland are considered by Norton and Walls in *Bulletin No. 100* of the Maryland Agricultural Experiment Station.

A first paper on Wyoming forage plants and their chemical composition, by Knight, Hepner, and Nelson, forms *Bulletin no. 65* of the Wyoming Experiment Station.

A paper by Laurent on the "Flore pliocène des Cinérites du Pas-de-la-Mongudo et de Saint-Vincent-la-Sabie (Cantal)" forms vol. 9, part 1, of the *Annales du Musée d' Histoire Naturelle de Marseille*.

The Journals.—*Botanical Gazette*, April:—Thaxter, "A New American Species of *Wynnea*"; Shoemaker, "On the Development of *Hamamelis virginiana*"; Christman, "Sexual Reproduction in the Rusts"; Whitford, "The Forests of the Flathead Valley, Montana"; Livingston, "Note on the Physiology of *Stigeoclonium*"; Trow, "Fertilization in the Saprolegniales."

Botanical Gazette, May:—Dean, "On Proteolytic Enzymes—I"; Cardiff, "Development of Sporangium in *Botrychium*"; Livingston, "Physiological Properties of Bog Water"; Darbishire, "An Apparatus for observing the Transpiration Stream"; Lyon, "Polyembryony in *Sphagnum*"; Maxon, "Adenoderris, a Valid Genus of Ferns."

Botanical Gazette, June:—Arthur, "Leguminous Rusts from Mexico"; Cannon, "On the Water-conducting Systems of some Desert Plants"; Caldwell, "The Effects of Toxic Agents upon the Action of Bromelin"; Sargent, "The Early History of Angiosperms."

The Bryologist, May:—Fink, "Further Notes on *Cladonias*—V"; Arnell, "Phænological Observations on Mosses"; Towle, "Notes on the Fruiting Season of *Catharinaea*"; Sargent, "Lichenology for Beginners"; Britton, "Notes on Nomenclature—V"; Cardot, "Notes on some North American Mosses—II"; Wood, "Additions to the Lichen Flora of Long Island"; Grout, "Notes on Vermont Bryophytes"; Holzinger, "Two Changes of Name."

The Bryologist, July:—Evans, "Diagnostic Characters in the *Jungermanniaceæ*"; Andrews, "Additions to the Bryophytic Flora of West Virginia"; Sargent, "Lichenology for Beginners—II"; Nicholson, "*Tortula pagorum*"; Britton, "A Long Lost Genus to the United States—*Erpodium*"; Fink, "What to note in the Macroscopic Study of Lichens."